

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

Claims 1-17 (cancelled)

18. (new) An information recording medium on which an entire stream including a plurality of portion streams, each of which comprises a series of content information, is multiplexed-and-recorded by a unit of packet, which is a physically accessible unit, said information recording medium comprising:

an object data file, which is a logically accessible unit, for storing object data which comprises a plurality of packets, each storing therein a piece of the content information;

a reproduction sequence information file for storing reproduction sequence information which defines a reproduction sequence of the object data stored in said object data file; and

an object information file for storing, as reproduction control information for controlling the reproduction of said object data file, correspondence definition information which defines a correspondence relationship between a plurality of packets multiplexed on a time axis and the plurality of portion streams,

said object information file being not multiplexed by the unit of packet and being recorded in a second area which is different from the first area on said information recording medium.

19. (new) The information recording medium according to claim 18, wherein

said object data file includes a plurality of object data recorded on the basis of interpretation rules which mutually differ with regard to the correspondence relationship and

the correspondence definition information defines the correspondence relationship on the basis of interpretation rules which are unified among the plurality of object data.

20. (new) The information recording medium according to claim 18, wherein the entire stream includes two or more portion streams, each comprising video information as the series of content information.

21. (new) An information recording apparatus for multiplexing and recording an entire stream including a plurality of portion streams, each of which comprises a series of content information, onto an information recording medium by a unit of packet, which is a physically accessible unit, said information recording apparatus comprising:

a first recording device for recording an object data file, which is a logically accessible unit, for storing object data which comprises a plurality of packets, each storing therein a piece of the content information;

a second recording device for recording a reproduction sequence information file for storing reproduction sequence information which defines a reproduction sequence of the object data stored in said object data file; and

a third recording device for recording an object information file for storing, as reproduction control information for controlling the reproduction of said object data file, correspondence definition information which defines a correspondence relationship between a plurality of packets multiplexed on a time axis and the plurality of portion streams,

said first recording device multiplexing said object data file by the unit of packet and recording it in a first area on said information recording medium,

said third recording device not multiplexing said object information file by the unit of packet and recording it in a second area which is different from the first area on said information recording medium.

22. (new) The information recording apparatus according to claim 21, wherein

the entire stream comprises at least one portion of a transport stream of MPEG 2 which is digitally transmitted and broadcasted and is received at a set top box and

said first recording device records said object data file such that one correspondence definition information, which defines the correspondence relationship included in the received entire stream, is included in one portion of the object data in the multiplexed form with the content information.

23. (new) An information recording method of multiplexing and recording an entire stream including a plurality of portion streams, each of which comprises a series of content information, onto an information recording medium by a unit of packet, which is a physically accessible unit, said information recording method comprising:

a first recording process of recording an object data file, which is a logically accessible unit, for storing object data which comprises a plurality of packets, each storing therein a piece of the content information;

a second recording process of recording a reproduction sequence information file for storing reproduction sequence information which defines a reproduction sequence of the object data stored in said object data file; and

a third recording process of recording an object information file for storing, as reproduction control information for

controlling the reproduction of said object data file, correspondence definition information which defines a correspondence relationship between a plurality of packets multiplexed on a time axis and the plurality of portion streams,

said first recording process multiplexing said object data file by the unit of packet and recording it in a first area on said information recording medium,

said third recording process not multiplexing said object information file by the unit of packet and recording it in a second area which is different from the first area on said information recording medium.

24. (new) The information recording method according to claim 23, wherein

the entire stream comprises at least one portion of a transport stream of MPEG 2 which is digitally transmitted and broadcasted and is received at a set top box and

said first recording process records said object data file such that one correspondence definition information, which defines the correspondence relationship included in the received entire stream, is included in one portion of the object data in the multiplexed form with the content information.

25. (new) An information reproducing apparatus for reproducing at least one portion of a recorded entire stream from an

information recording medium on which the entire stream including a plurality of portion streams, each of which comprises a series of content information, is multiplexed-and-recorded by a unit of packet, which is a physically accessible unit, said information recording medium comprising: an object data file, which is a logically accessible unit, for storing object data which comprises a plurality of packets, each storing therein a piece of the content information; a reproduction sequence information file for storing reproduction sequence information which defines a reproduction sequence of the object data stored in said object data file; and an object information file for storing, as reproduction control information for controlling the reproduction of said object data file, correspondence definition information which defines a correspondence relationship between a plurality of packets multiplexed on a time axis and the plurality of portion streams, said object data file being multiplexed by the unit of packet and being recorded in a first area on said information recording medium, said object information file being not multiplexed by the unit of packet and being recorded in a second area which is different from the first area on said information recording medium,

said information reproducing apparatus comprising:

a reading device for physically reading information from said information recording medium; and

a reproducing device for reproducing the object data by demultiplexing for the information read by said reading device from the first area on the basis of the reproduction control information and the reproduction sequence information included in the information read by said reading device from the second area.

26. (new) The information reproducing apparatus according to claim 25, wherein said reproducing device demultiplexes such that a packet corresponding to one or a plurality of portion streams that are reproduction objects out of the plurality of packets multiplexed is extracted in accordance with the correspondence definition information included in the information read by said reading device.

27. (new) An information reproducing method of reproducing at least one portion of a recorded entire stream from an information recording medium on which the entire stream including a plurality of portion streams, each of which comprises a series of content information, is multiplexed-and-recorded by a unit of packet, which is a physically accessible unit, said information recording medium comprising: an object data file, which is a logically accessible unit, for storing object data which comprises a plurality of packets, each storing therein a piece of the content information; a reproduction sequence information file for storing reproduction sequence information which defines a reproduction

sequence of the object data stored in said object data file; and an object information file for storing, as reproduction control information for controlling the reproduction of said object data file, correspondence definition information which defines a correspondence relationship between a plurality of packets multiplexed on a time axis and the plurality of portion streams, said object data file being multiplexed by the unit of packet and being recorded in a first area on said information recording medium, said object information file being not multiplexed by the unit of packet and being recorded in a second area which is different from the first area on said information recording medium,

said information reproducing method comprising:

a reading process of physically reading information from said information recording medium; and

a reproducing process of reproducing the object data by demultiplexing for the information read by said reading process from the first area on the basis of the reproduction control information and the reproduction sequence information included in the information read by said reading process from the second area.

28. (new) The information reproducing method according to claim 27, wherein said reproducing process demultiplexes such that a packet corresponding to one or a plurality of portion streams



that are reproduction objects out of the plurality of packets multiplexed is extracted in accordance with the correspondence definition information included in the information read by said reading process.

29. (new) An information recording and reproducing apparatus for recording an entire stream onto and reproducing at least one portion of the recorded entire stream from an information recording medium on which the entire stream including a plurality of portion streams, each of which comprises a series of content information, is multiplexed-and-recorded by a unit of packet, which is a physically accessible unit, said information recording medium comprising: and object data file, which is a logically accessible unit, for storing object data which comprises a plurality of packets, each storing therein a piece of the content information; a reproduction sequence information file for storing reproduction sequence information which defines a reproduction sequence of the object data stored in said object data file; and an object information file for storing, as reproduction control information for controlling the reproduction of said object data file, correspondence definition information which defined a correspondence relationship between a plurality of packets multiplexed on a time axis and the plurality of portion streams, said object data file being multiplexed by the unit of packet and being recorded in a first area on said

information recording medium, said object information file being not multiplexed by the unit of packet and being recorded in a second area which is different from the first area on said information recording medium,

said information recording and reproducing apparatus comprising:

a first recording device for recording said object data file;

a second recording device for recording said reproduction sequences information file;

a third recording device for recording said object information file;

a reading device for physically reading information from said information recording medium; and

a reproducing device for reproducing the object data by demultiplexing for the information read by said reading device from the first area on the basis of the reproduction control information and the reproduction sequence information included in the information read by said reading device from the second area.

30. (new) An information recording and reproducing method of recording an entire stream onto and reproducing at least one portion of the recorded entire stream from an information recording medium on which the entire stream including a plurality of portion streams, each of which comprises a series of content

information, is multiplexed-and-recorded by a unit of packet, which is a physically accessible unit, said information recording medium comprising: an object data file, which is a logically accessible unit, for storing object data which comprises a plurality of packets, each storing therein a piece of the content information; a reproduction sequence information file for storing reproduction sequence information which defines a reproduction sequence of the object data stored in said object data file; and an object information file for storing, as reproduction control information for controlling the reproduction of said object data file, correspondence definition information which defines a correspondence relationship between a plurality of packets multiplexed on a time axis and the plurality of portion streams, said object data file being multiplexed by the unit of packet and being recorded in a first area on said information recording medium, said object information file being not multiplexed by the unit of packet and being recorded in a second area which is different from the first area on said information recording medium,

said information recording and reproducing method comprising:

a first recording process of recording said object data file;

a second recording process of recording said reproduction sequence information file;

a third recording process of recording said object information file;

a reading process of physically reading information from said information recording medium; and

a reproducing process of reproducing the object data by demultiplexing for the information read by said reading process from the first area on the basis of the reproduction control information and the reproduction sequence information included in the information read by said reading process from the second area.

31. (new) A computer program product for controlling record and for tangibly embodying a program of instructions executable by a computer to make the computer function as at least one portion of a first recording device, a second recording device, and a third recording device,

the computer being provided in an information recording apparatus for multiplexing and recording an entire stream including a plurality of portion streams, each of which comprises a series of content information, onto an information recording medium by a unit of packet, which is a physically accessible unit, said information recording apparatus comprising:

said first recording device for recording an object data file, which is a logically accessible unit, for storing object

data which comprises a plurality of packets, each storing therein a piece of the content information;

said second recording device for recording a reproduction sequence information file for storing reproduction sequence information which defines a reproduction sequence of the object data stored in said object data file; and

said third recording device for recording an object information file for storing, as reproduction control information for controlling the reproduction of said object data file, correspondence definition information which defines a correspondence relationship between a plurality of packets multiplexed on a time axis and the plurality of portion streams,

said first recording device multiplexing said object data file by the unit of packet and recording it in a first area on said information recording medium,

said third recording device not multiplexing said object information file by the unit of packet and recording it in a second area which is different from the first area on said information recording medium.

32. (new) A computer program product for controlling reproduction and for tangibly embodying a program of instructions executable by a computer to make the computer function as at least one portion of a reproducing device,

the computer being provided in an information reproducing apparatus for reproducing at least one portion of a recorded entire stream from an information recording medium on which the entire stream including a plurality of portion streams, each of which comprises a series of content information, is multiplexed-and-recorded by a unit of packet, which is a physically accessible unit, said information recording medium comprising: an object data file, which is a logically accessible unit, for storing object data which comprises a plurality of packets, each storing therein a piece of the content information; a reproduction sequence information file for storing reproduction sequence information which defines a reproduction sequence of the object data stored in said object data file; and an object information file for storing, as reproduction control information for controlling the reproduction of said object data file, correspondence definition information which defines a correspondence relationship between a plurality of packets multiplexed on a time axis and the plurality of portion streams, said object data file being multiplexed by the unit of packet and being recorded in a first area on said information recording medium, said object information file being not multiplexed by the unit of packet and being recorded in a second area which is different from the first area on said information recording medium,

said information reproducing apparatus comprising:

a reading device for physically reading information from said information recording medium; and

said reproducing device for reproducing the object data by demultiplexing for the information read by said reading device from the first area on the basis of the reproduction control information and the reproduction sequence information included in the information read by said reading device from the second area.

33. (new) A computer program product for controlling record and reproduction and for tangibly embodying a program of instructions executable by a computer to make the computer function as at least one portion of a first recording device, a second recording device, a third recording device, and a reproducing device,

the computer being provided in an information recording and reproducing apparatus for recording an entire stream onto and reproducing at least one portion of the recorded entire stream from an information recording medium on which the entire stream including a plurality of portion streams, each of which comprises a series of content information, is multiplexed-and-recorded by a unit of packet, which is a physically accessible unit, said information recording medium comprising: an object data file, which is a logically accessible unit, for storing object data which comprises a plurality of packets, each storing therein a piece of the content information; a reproduction sequence information file for storing reproduction sequence information

which defines a reproduction sequence of the object data stored in said object data file; and an object information file for storing, as reproduction control information for controlling the reproduction of said object data file, correspondence definition information which defines a correspondence relationship between a plurality of packets multiplexed in a time axis and the plurality of portion streams, said object data file being multiplexed by the unit of packet and being recorded in a first area on said information recording medium, said object information file being not multiplexed by the unit of packet and being recorded in a second area which is different from the first area on said information recording medium,

said information recording and reproducing apparatus comprising:

said first recording device for recording said object data file;

said second recording device for recording said reproduction sequence information file;

said third recording device for recording said object information file;

a reading device for physically reading information from said information recording medium; and

said reproducing device for reproducing the object data by demultiplexing for the information read by said read device from the first area on the basis of the reproduction control



information and the reproduction sequence information included in the information read by said reading device from the second area.

34. (new) A data structure including a control signal, in which an entire stream including a plurality of portion streams, each of which comprises a series of content information, is multiplexed by a unit of packet, which is a physically accessible unit, having:

- an object data file, which is a logically accessible unit, for storing object data which comprises a plurality of packets, each storing therein a piece of the content information;

- a reproduction sequence information file for storing reproduction sequence information which defines a reproduction sequence of the object data stored in said object data file; and

- an object information file for storing, as reproduction control information for controlling the reproduction of said object data file, correspondence definition information which defines a correspondence relationship between a plurality of packets multiplexed on a time axis and the plurality of portion streams,

- said object data file being multiplexed by the unit of packet and being recorded in a first area on said information recording medium,

- said object information file being not multiplexed by the unit of packet and being recorded in a second area which is

different from the first area on said information recording medium.